

Appendix D

Likelihood of Occurrence Table

**ENDANGERED, THREATENED, AND SENSITIVE SPECIES
LIKELIHOOD OF OCCURRENCE
Lower Glady Watershed
12/2000**

THREATENED/ENDANGERED SPECIES

MAMMALS

Gray Wolf *Canis lupus*

E/___/SH

Habitat: High spruce forest and associated northern mixed hardwood/coniferous forest.

MNF Range: **Considered extirpated from WV since 1900** when the last wolf was killed in the state.^{1, 41}

Virginia Big-eared Bat *Corynorhinus townsendii virginianus*

E/G5T2/S2

Habitat: Caves during both summer and winter. These caves typically are located in karst regions dominated by oak-hickory or beech-maple-hemlock associations. Forage in patchy mosaic habitats^{3, 45}

MNF Range: Cave Mountain Cave (Pendleton Co.) and Cave Hollow/Arbogast (Tucker Co.) have been designated as Critical Habitat by USFWS.

LOO: Numerous caves within watershed area and within 6 mile radius of boundary. Summer forage habitat present within the watershed.

Eastern Cougar *Puma concolor cougar*

E/G4TH/SH

Habitat: Very large, remote, undisturbed, mountainous area. Hardwood or mixed forest.

MNF Range: **Presence in West Virginia is unconfirmed at this time.**^{1, 41} The last documented eastern cougar is one shot in Pendleton Co. in 1887 but as late as 1936 there were reported tracks in Pocahontas Co.⁴¹

VA Northern Flying Squirrel *Glaucomys sabrinus fuscus*

E/G5T2/S2

Habitat: Northern hardwood forests with a conifer component. Lowest recorded elevation is 2860'.^{2, 26, 45}

MNF Range: Extends southwestward, following the Allegheny Mt., from Canaan Heights and the northwestern edge of the Dolly Sods Wilderness Area (Tucker Co.) in the north to Briery Knob (Pocahontas Co.) and Rabbit Run (Greenbrier Co.) in the south. Also encompassing areas in Randolph, Webster, and Pendleton Co.

LOO: No captures within the watershed boundary, however suitable habitat may exist at the higher elevations within the watershed and adjacent.

Indiana Bat *Myotis sodalis*

E/G2/S1

Habitat: Winter in caves or mines that satisfy their highly specific needs for cold temperatures during hibernation. During summer, roost in trees and forage primarily in riparian and upland forests.^{4, 45}

MNF Range: Tucker, Hardy, Randolph, Pocahontas, Nicholas and Greenbrier Counties.

LOO: Numerous caves within watershed area and within 5 mile radius of boundary. Summer forage and roosting habitat present within the watershed.

BIRDS

Peregrine Falcon *Falco peregrinus anatum*

DELISTED to Sensitive

Nests on cliffs, prominent high spots, buildings and bridges requiring isolation from human disturbance.

MNF Range: Areas along North Fork Mountain and Gauley Gorge. Historic nest sites found in Grant, Pendleton, and Greenbrier Co.

Bald Eagle *Haliaeetus leucocephalis*

T/G3/S1

Habitat: Typically found along the shores of large rivers and lakes, as main prey is fish and waterfowl. Nests in tall trees or on cliffs near large rivers or lakes.⁶

MNF Range: Grant, Hampshire, Mineral and Hardy Co. Migratory routes traverse areas of the MNF Ranger Districts.

LOO: There are no known nests in this watershed.

AMPHIBIAN

Cheat Mountain Salamander *Plethodon nettingi*

T/G2/S1

Habitat: Moist spruce or mixed spruce/deciduous forests, including, but not limited to, shaded or moist coves, possibly with rhododendron and/or small emergent rocks within spruce or hemlock forest. Spruce stands containing *Bazzania* (a liverwort).⁷

MNF Range: Minimum elevation is 2600' on the Cheat district, and 2940' on the Potomac and Greenbrier districts. Range extends east of McGowan Mt. (Randolph Co.) to Dolly Sods (Tucker Co.), south to Spruce Knob (Pendleton & Pocahontas Co.), southwest to Thorny Flat (Pocahontas Co.), north to Barton Knob (Randolph Co.). Not known to occur on the Gauley, Marlinton, or White Sulphur districts.

LOO: There are four known populations within the watershed boundary. There is a need for additional surveys and colony delineation at known sites.

REPTILES & FISH - None

PLANTS

Shale Barren Rock Cress *Arabis serotina*

E/G2/S1

Habitat: Biennial herb found mostly on shale barrens of eastern counties of WV.⁸

MNF Range: Grant, Greenbrier, and Pendleton counties.

LOO: No shale barren habitat within this watershed.

Small-whorled pogonia *Isotria medeoloides*

T/G2G3/S1

Habitat: Mixed deciduous or mixed-deciduous/coniferous forest in generally second or third growth successional stages; occurs in both fairly young forests and in maturing stands.

Majority of occupied sites have: sparse to moderate ground cover; relatively open understory, proximity to logging roads, streams or other features that create long persisting breaks in canopy; associated species -- witch-hazel, striped maple, hazelnut, serviceberry; highly acidic nutrient-poor soil.¹⁷

MNF Range: Occurs on only one site in WV in Greenbrier County, White Sulphur District.

LOO: No known populations occur within the watershed, however potential habitat does exist.

Virginia Spirea *Spiraea virginiana*

T/G2/S1

Habitat: A Clonal shrub found on damp, rocky banks of larger high gradient streams also on flood-scoured mouths of side streams, rocky isles, and seasonally flooded side channels, in shrub thickets between the river and forest. Requires full sun or shade. ⁹

MNF Range: Known from Greenbrier Co. near Greenbrier Youth Camp; National Park Service land in Nicholas Co.

LOO: No known populations occur within the watershed. This area is outside of known range of species.

Running Buffalo Clover *Trifolium stoloniferum*

E/G1/S1

Habitat: Perennial clover found on rich, fertile (limestone geology & soils), semi-shaded habitats. Open, savannah-like forests; lightly disturbed areas such as old logging roads. Also old farmsteads and cemeteries. ⁹

MNF Range: Logging roads on the Fernow Experimental Forest; Swecker Ridge, McGowan Mt., Cheat Mt. (Chestnut Ridge), Shavers Fork (Randolph and Tucker Co.). Also found in Greenbrier and Pendleton Co.

LOO: There are two known populations within the watershed. Additional surveys are required if specific project areas are identified.

SENSITIVE SPECIES

MAMMALS

Southern Rock Vole *Microtus chrotorrhinus carolinensis* SOC/G4T3/S3

Habitat: Moist rocky areas or mossy rocks and logs in spruce & mixed deciduous-coniferous forests ⁴⁸, often with birch, other hardwoods & hemlock components, dense ground cover of mosses, ferns, & northern herbs. Also found on unvegetated talus, grass balds, recent clearcuts, & road-fills. Highly associated with surface or subsurface water. ^{10, 48}

MNF Range: Tucker, Randolph, Pendleton, Pocahontas, & Greenbrier Co.

LOO: Suitable habitat can be found within the watershed.

Eastern Small-footed Bat *Myotis leibii*

SOC/G3/S2S3

Habitat: Hibernates in caves, sometimes under stones or in deep crevices. Summer roosts and maternity sites are usually in buildings, caves, rock crevices, tunnels or under bridges. It is thought that rock outcrops are important for this species. Forages over ponds and streams. Summer habitat may or may not be in proximity to hibernation sites. ^{11, 42}

MNF Range: Preston, Tucker, Grant, Randolph, Pendleton, Pocahontas, and Greenbrier Co.

LOO: Several small-footed bats have been captured during mist netting within the watershed, therefore foraging and roosting habitat does occur.

Allegheny Woodrat *Neotoma magister*

SOC/G3G4

Habitat: Extensive rocky areas in deciduous or mixed forests, outcrops, cliffs, rocky talus slopes, caves, riverbanks with sandstone rocks and boulders ¹² and buildings ^{47, 45}.

MNF Range: Widespread across the Monongahela in rocky areas and around many caves

LOO: Possible; within known range and suitable habitat is present in watershed.

Appalachian/Southern Water Shrew *Sorex palustris punctulatus* SOC/G5T3/S2

Habitat: Found in the vicinity of streams or other bodies of water. Heavy vegetative cover and plentiful logs, rocks, crevices, or other sources of shelter that offer high humidity and overhead protection⁴⁷. Dominant trees often yellow birch and red maple with dense rhododendron and laurel understory.¹³

MNF Range: Preston, Tucker, Randolph, Pendleton, and Pocahontas Co.

LOO: Possible; within known range and suitable habitat is present in watershed.

BIRDS

Northern Goshawk *Accipiter gentilis*

SOC/G4G5/S1

Habitat: Coniferous, deciduous, & mixed forests; utilizes a variety of forest types, structural conditions, and successional stages. Usually nests in trees greater than 12" DBH. WV is on the southern extent of range.^{15, 21}

MNF Range: Pocahontas, Randolph, Webster, Tucker Co. They also may be found nesting at elevations above 2500-3000 feet in Grant, Greenbrier, Mineral, Nicholas, and Preston Co.

LOO: Within known range and suitable habitat is present in watershed, however no confirmed nesting activity was observed during surveys.

Cerulean Warbler *Denroica cerulea*

SOC/G4/___

NO LONGER ON SS LIST

Found in mature deciduous forest, particularly in floodplains or other mesic conditions. Common through western hills of WV, but becomes uncommon and local toward the Alleghenies. Greatest numbers below 1980'. Nest records from Greenbrier, Preston, Nicholas, Webster, Pocahontas Counties.

Peregrine Falcon *Falco peregrinus anatum*

/G3/S1

Habitat: Nest sites on cliffs, prominent high spots, buildings and bridges. Needs isolation from human disturbance.⁵

MNF Range: Historic nest sites in Grant, Pendleton, and Greenbrier Co. Known nests found on North Fork Mountain and Gauley Gorge.

LOO: No suitable habitat found in watershed.

Migrant Loggerhead Shrike *Lanius ludovicianus migrans*

G5T3Q

Habitat: Most numerous in dry, open, eastern valleys (Shenandoah Valley). Prefers open farm and pasture, usually perching on scattered trees or wires. Favored nesting site: dense brush, most often with thorn trees.^{21, 22}

MNF Range: May be found almost any summer in Hampshire, Grant, Pendleton, Greenbrier, and Monroe Co. Rare and local in Nicholas, Pocahontas, Tucker, and Hardy Co. Confirmed nesting in Berkley, Grant, Greenbrier, Monroe, and Mercer Co.²¹

LOO: Potential nesting habitat may be found on Forest Service and adjacent private pasture land, however there have been no confirmed observations.

REPTILES

Timber Rattlesnake *Crotalus horridus*

G4/S4 NEW R9 SS

Habitat: Rough mountainous terrain where brushy ridges and rocky hillsides with ledges abound. Common in wooded areas, but may occur in valleys, along streams and among slab piles around old sawmill sites.¹⁷ Timbered areas with rocky outcroppings, dry ridges and second growth deciduous or coniferous forests with high rodent populations.⁵⁰

MNF Range: In WV, range extends from the Eastern Panhandle across the Alleghenies south into Mercer and Mingo counties.

LOO: Possible; within known range and suitable habitat is present in watershed.

AMPHIBIANS

Green Salamander *Aenides aeneus*

SOC/G3G4/S3

Habitat: Smaller deeper crevices in rock faces, well-shaded and moist, but not wet, or under bark on trees, rotting logs, etc. Usually found below 3000' in northern MNF; below 3500' in southern MNF. ^{17, 23}

MNF Range: Droop Mtn.; Blackwater Falls State Park; Tucker, Pocahontas, Randolph, Webster, and Nicholas Co. ³⁰

LOO: Possible; within known range and suitable habitat is present in watershed.

Hellbender *Cryptobranchus alleghaniensis*

SOC/G4/S3

Habitat: Cool, clear, larger permanent streams. Found throughout the Ohio River drainage. They spend most of their time under flat rocks, emerging at night to forage for food. ^{17, 23}

MNF Range: Tucker, Randolph, Pocahontas, Webster, Nicholas, and Greenbrier Co.

LOO: Possible; within known range and suitable habitat is present in watershed.

FISH

Redside Dace *Clinostomus elongatus*

/G4/S1S2 **NEW R9 SS**

Habitat: Clear, cool streams, in small pools or backwater areas; most often found over gravel or cobble substrates and not typically found in association with aquatic vegetation. Found in the Monongahela River basin; the upper main channel of the Ohio River; and Middle Grave Creek. In all areas it is patchily distributed and uncommon.

MNF Range: Species has not been taken within MNF boundaries. The closest known localities are from Blackwater River above the falls (i.e. Canaan Valley), and Laurel Creek in Preston Co. ^{24, 25}

LOO: Watershed is outside of known habitat range.

Candy Darter *Etheostoma osburni*

SOC/G3/S3

Habitat: Occupies rocky riffles, appears to be most common in cool to cold sections of moderate to small streams. Widely distributed, locally common endemic of lower New River drainage. ^{49, 18}

MNF Range: Gauley & New River drainages.

LOO: Watershed is outside of known habitat range.

Pearl Dace *Margariscus margarita*

G5/S3S4 **NEW R9 SS**

Habitat: Small, clear, cold streams; often in the vicinity of springs over fine gravel substrates ⁴⁹; frequently occupies bogs and ponds created by beaver dams.

MNF Range: In WV restricted to the Potomac and Monongahela Rivers; most abundant in Shavers Fork of the Cheat River and the two eastern-most tributaries of the Potomac River. ²⁵

LOO: Watershed is outside of known habitat range.

New River Shiner *Notropis scabriceps*

/G4/S2 **NEW R9 SS**

Habitat: Pools or slow runs in small or medium-sized streams, usually over bedrock or gravel substrates.

MNF Range: An endemic species with patchy distribution in the northern tributaries of the New River and definitely located within boundaries of the MNF. Has almost disappeared from the Gauley River drainages, but can still be found in the eastern tributaries. Is still fairly common in the Greenbrier River waters. ^{24, 25}

LOO: Absent; Watershed is outside of known habitat range.

Appalachian Darter *Percina gymnocephala*

/G3/S3 **NEW R9 SS**

Habitat: Pools and runs of mid-sized to large streams and rivers.

MNF Range: New River, Greenbrier and Gauley Rivers, East Fork of the Greenbrier River and Laurel Creek, Gauley drainage.²⁵

LOO: Watershed is outside of known habitat range.

Kanawha Minnow *Phenacobius teretulus*

SOC/G3/S1

Habitat: Endemic to New (upper Kanawha) River drainage. Juveniles and adults typically occupy riffles and runs of gravel, rubble and boulder in cool to warm medium to large streams⁴⁹. Apparently has a preference for soft water¹⁹.

MNF Range: Upper Gauley River & New River tributaries. Pocahontas, Webster and Greenbrier Counties. May only inhabit the east and west forks of the Greenbrier River.

LOO: Watershed is outside of known habitat range.

Cheat Minnow *Rhinichthys bowseri*

SOC/G1G2/S1S2

Habitat: Most often found in deep runs over gravel/rubble substrate.²⁰

MNF Range: Found only in the Monongahela River drainages of the Ohio River Basin in WV and in waters on the Appalachian Plateau and Allegheny Mt. Provinces.

LOO: Three captures within the main stem of the Glady.

MOLLUSKS

Elktoe *Alasmodonta marginata*

SOC/G5/S3

Habitat:

MNF Range: Present in Greenbrier River, Cloverlick down through Hosterman to the mouth of the Greenbrier and into the New River.

LOO: Absent; Watershed is outside of known habitat range.

Organ Cavesnail

Fontigens tartarea

___/G2/S2

Habitat: Under flat rocks in streams with moderate current.⁴³

*MNF Range:*³⁰

Species Occurrence	County	Quad	Cave
On Forest	Randolph	Bowden	Bowden
On Forest	Randolph	Bowden	Bowden/Bear Heaven
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within Proclamation Bdry	Pocahontas	Mingo	Dreen
Within 5 miles of PB	Pocahontas	Hillsboro	Martha's
Within 5 miles of PB	Randolph	Harman	Bazzle
Within 5 miles of PB	Randolph	Mingo	Simmons-Mingo
Within 5 miles of PB	Tucker	Mozark Mt.	Harper

LOO: Caves noted above are not within watershed.

Green Floater

Lasmigona subviridis

SOC/G3/S2

Habitat: Fine gravel and sand in backwater and slower water. Patchy occurrence in small to large rivers away from fast current and large boulders.

MNF Range: Currently in Greenbrier River & Clover Creek. Past record from New River drainage. Any Greenbrier River tributary is potential habitat. Two sites on west fork of Greenbrier above Durbin. From Cass south on Greenbrier is good potential.^{14, 26}

LOO: Watershed is outside known habitat range.

INSECTS

Looper moth *Euchlaena milnei*

SOC/GU/S?

NO LONGER ON SS LIST

Found mostly in riparian areas of dry forest types in the eastern portion of the state, extending from the northern to southern border of the state. Range ends where northern hardwoods start. Specimens have been taken in the Smokehole Region of the Potomac District down through Reed's Creek.

A cave beetle

Pseudanophthalmus fuscus

/G2G3/S2 **NEW R9 SS**

Habitat: Usually near damp or wet places under rocks or rotting wood near cave streams. ³⁵

MNF Range: ³⁰

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within 5 miles of PB	Greenbrier	Droop	Fox
Within 5 miles of PB	Greenbrier	Williamsburg	Higginbothams
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Pocahontas	Denmar	Bolling
Within 5 miles of PB	Pocahontas	Hillsboro	Blue Springs

LOO: Caves noted above are not within watershed.

Timber Ridge cave beetle *Pseudanophthalmus hadenoecus* /G1/S1 **NEW R9 SS**

Habitat: Twilight zone or deeper in caves; on moist soil, often near streams or drip areas. Probably do burrow some; often found under rocks or debris. ³¹

MNF Range: Occurs in Mystic Cave, Pendleton Co., Onego Quad (right on Proclamation Bdry). ³⁰

LOO: Caves noted above are not within watershed.

A cave beetle

Pseudanophthalmus hypertrichosis

G3/S3 **NEW R9 SS**

Habitat: Damp clay banks in caves. ⁴³

MNF Range: ³⁰

Species/location	County	Quad	Cave
Within Proclamation Bdry	Pocahontas	Hillsboro	Friels
Within Proclamation Bdry	Pocahontas	Same	Tub
Within Proclamation Bdry	Pocahontas	Cass	Grimes
Within Proclamation Bdry	Pocahontas	Mingo	Linwood
Within Proclamation Bdry	Pocahontas	Mingo	Dreen
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within 5 miles of PB	Pocahontas	Hillsboro	Martha's
Within 5 miles of PB	Pocahontas	Hillsboro	Blue Springs
Within 5 miles of PB	Pocahontas	Denmar	Bolling
Within 5 miles of PB	Pocahontas	Cass	Cass
Within 5 miles of PB	Pocahontas	Lobelia	Martens
Within 5 miles of PB	Pocahontas	Mingo	Simmons-Mingo
Within 5 miles of PB	Greenbrier	Lewisburg	Arbuckle
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Randolph	Valley Head	Crawford #1
Within 5 miles of PB	Randolph	Mingo	Devils Kitchen
Within 5 miles of PB	Randolph	Mingo	Simmons-Mingo

LOO: Caves noted above are not within watershed.

Dry Fork Valley Cave Beetle *Pseudanophthalmus montanus* SOC/G1/S1

Habitat: Twilight zone or deeper in selected caves, in or on moist soil, often near streams or drip areas, often under rocks or debris.

MNF Range: Known from only four WV caves in Tucker and Randolph Co. The only MNF cave is Cave Hollow/Arbogast Cave, Tucker Co.³⁰

LOO: Cave Hollow/Arbogast Cave is outside watershed.

Gandy Creek cave springtail *Pseudosinella certa* /G1/S1 **NEW R9 SS**

Habitat: Clay banks, damp places on or near organic debris in caves.³³

MNF Range: Occurs within 5 miles of the Proclamation Boundary in Stillhouse Cave, Randolph Co., Sinks of Gandy quad.³⁰

LOO: Stillhouse Cave is outside watershed.

A Springtail *Pseudosinella gisini* /G3/S3 **NEW R9 SS**

Habitat: Found in damp places on or near bits of organic material in caves.³³

*MNF Range*³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Greenbrier	Anthony	The Hole
Within Proclamation Bdry	Pocahontas	Cass	Grimes
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within Proclamation Bdry	Pocahontas	Hillsboro	Friels
Within Proclamation Bdry	Pocahontas	Hillsboro	Tub
Within Proclamation Bdry	Pocahontas	Mingo	My Cave
Within 5 miles of PB	Greenbrier	Lewisburg	Arbuckle
Within 5 miles of PB	Greenbrier	Droop	Friars Hole
Within 5 miles of PB	Greenbrier	Williamsburg	Allison
Within 5 miles of PB	Greenbrier	Williamsburg	Buckeye Creek
Within 5 miles of PB	Greenbrier	Williamsburg	Fuells Fruit
Within 5 miles of PB	Greenbrier	Williamsburg	Higginbothams
Within 5 miles of PB	Greenbrier	Williamsburg	Ludington
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Greenbrier	Williamsburg	Rapps
Within 5 miles of PB	Pocahontas	Droop	Clyde Cochrane Sinks

LOO: Caves noted above are outside watershed.

A Springtail *Sinella agna* /G2G3/S1 **NEW R9 SS**

Habitat: Damp places in caves on or near bits of organic material.³³

*MNF Range*³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pocahontas	Mingo	My Cave
Within Proclamation Bdry	Pocahontas	Mingo	Dreen
Within Proclamation Bdry	Pocahontas	Mingo	Just
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within 5 miles of PB	Tucker	Mozark Mt.	Harper

LOO: Caves noted above are outside watershed.

Diana Fritillary *Speyeria Diana* /G3/S2S3 **NEW R9 SS**

Habitat: Inhabits mountainous areas in WV; prefers moist and well-shaded forest covers with rich soils; utilizes small openings and roadsides in search of nectar plants but will not stray far from woods; usually found nectaring along woodland edges. Nectar sources: milkweeds, thistles, butterfly weed, wild bergamot, Joe-pye-weed and ironweed. Larval host – woodland violets.³⁷

MNF Range: Found in the southern third of the state, south from lower Pocahontas Co., and west to Kanawha and Lincoln Co.; may also occur occasionally in other surrounding counties, as well as the southern counties, with no records to date.³⁷

LOO: Watershed is outside known habitat range.

Culver's Planarium *Sphalloplana culveri* /G1/S1 **NEW R9 SS**

Habitat: In small streams under rocks and pieces of wood in caves.³³

MNF Range: Within Proclamation Boundary in Harper Cave, Mozark Mt. Quad, Tucker Co.³⁰

LOO: Harper Cave is outside of watershed.

INVERTEBRATES

Dry Fork Valley cave pseudoscorpion *Apochthonius paucispinosus* /G1/S1 **NEW**

Habitat: Damp leaf litter in caves.

MNF Range: Bennett Cave, Mozark Mountain Quad, Tucker Co. (within Proclamation Boundary)³⁰

LOO: Bennett cave is outside the watershed boundary.

Cheat Valley Cave Isopod *Caecidotea cannulus* SOC/G2/S1

Habitat: Found under flat rocks in subterranean streams and pools in caves. May also be found in springs flowing out of caves.

MNF Range: Only known to occur in southern Tucker and northern Randolph Counties. Found in Alpena #1 and Bowden Caves and Cave Hollow/Arbogast Cave.

LOO: Can be found in Aplena #1 cave. Other caves are outside watershed boundary.

Holsinger's/Greenbrier Valley Cave Isopod *Caecidotea holsingeri* ___/G3/S3

Habitat: The most common and widespread troglobitic isopod in WV. In cave stream gravel, under rocks, on decaying wood in streams, and occasionally in drip pools.

MNF Range: Only MNF cave known to harbor the species is Bowden Cave*, Randolph Co. Also found in one cave in Virginia and one in Maryland.

LOO: Absent; Bowden Cave is not located within the watershed.

An isopod *Caecidotea simonini* /G1/ S1 **NEW R9 SS**

Habitat: Cave pools.³³

MNF Range³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Randolph	Sinks of Gandy	Stillhouse
Within 5 miles of PB	Randolph	Whitmer	Flower Pot

WVNDR data base

LOO: Caves noted above are not within the watershed.

An isopod *Caecidotea sinuncus*

/G3/SU NEW R9 SS

Habitat: Under flat rocks in cave streams ³³.

MNF Range: Within Proclamation Boundary, Blowhole, Keel spring, and Mystic Caves, Onego Quad, Pendleton Co. ³⁰

LOO: Caves noted above are not within the watershed.

An underground crayfish *Cambarus nerterius*

/G2G3/S1 NEW R9SS

Habitat: WV's only cave crayfish. Generally in subterranean streams, but small specimens have been collected from dry streambeds (but nearly saturated humidity). ^{28, 29}

MNF Range ³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pocahontas	Mingo	My Cave
Within 5 miles of PB	Greenbrier	Williamsburg	Matts Black
Within 5 miles of PB	Greenbrier	Williamsburg	Buckeye Creek
Within 5 miles of PB	Greenbrier	Williamsburg	Ludington
Within 5 miles of PB	Greenbrier	Williamsburg	McClungs
Within 5 miles of PB	Pocahontas	Droop	Clyde Cochrane Sinks

LOO: Caves noted above are not within the watershed.

Hoffmaster's cave flatworm

Macrocotyla hoffmasteri

/G2G3/S3 NEW R9 SS

Habitat: In first order and small second order streams of caves. ²⁷

MNF Range ³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pendleton	Onego	Mystic
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within Proclamation Bdry	Tucker	Mozark Mt.	Harper
Within 5 miles of PB	Greenbrier	Williamsburg	Levisay
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Randolph	Harman	Bazzle

LOO: Caves noted above are not within watershed.

Greenbrier Valley cave millipede *Pseudotremia fulgida* /G2G3/S2 NEW R9 SS

Habitat: Mud/clay banks in caves; sometimes associated with organic debris.

*MNF range*³⁰

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Greenbrier	Anthony	The Hole
Within Proclamation Bdry	Pocahontas	Hillsboro	Poor Farm
Within Proclamation Bdry	Pocahontas	Hillsboro	Friels
Within Proclamation Bdry	Pocahontas	Hillsboro	Overholtz Blowing
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within 5 miles of PB	Greenbrier	Williamsburg	Higginbothams
Within 5 miles of PB	Greenbrier	Williamsburg	Allisons
Within 5 miles of PB	Greenbrier	Williamsburg	Ludington
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Greenbrier	Williamsburg	Rapps
Within 5 miles of PB	Greenbrier	Lewisburg	Arbuckle
Within 5 miles of PB	Pocahontas	Denmar	Poor Farm
Within 5 miles of PB	Pocahontas	Droop	Clyde Cochrane Sinks
Within 5 miles of PB	Pocahontas	Droop	Friars Hole
Within 5 miles of PB	Pocahontas	Durbin	Durbin
Within 5 miles of PB	Pocahontas	Hillsboro	Blue Springs
Within 5 miles of PB	Pocahontas	Hillsboro	Martha's
Within 5 miles of PB	Pocahontas	Hillsboro	Steam
Within 5 miles of PB	Pocahontas	Lobelia	Hughes Creek

LOO: Caves noted above are outside watershed.

Germany Valley cave millipede *Pseudotremia lusciosa* /G1/S1 NEW R9 SS

Habitat: Mud/clay banks in caves; sometimes associated with organic debris.³³

*MNF Range*³⁰

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pendleton	Onego	Seneca Caverns
Within Proclamation Bdry	Pendleton	Onego	Hell Hole
Within Proclamation Bdry	Pendleton	Onego	Stratosphere Balloon
Within Proclamation Bdry	Pendleton	UpperTract	Schoolhouse

LOO: Caves noted above are outside watershed.

South Branch Valley cave millipede *Pseudotremia princeps* /G1/S1 NEW R9 SS

Habitat: Mud/clay banks in caves; sometimes associated with organic debris.³³

*MNF Range*³⁰

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Grant	Petersburg	Peacock
Within Proclamation Bdry	Grant	Upper Tract	Smokehole
Within 5 miles of PB	Pendleton	Moatstown	Kenny Simmons
Within 5 miles of PB	Pendleton	Onego	Mystic

LOO: Caves noted above are outside watershed.

Culver's Cave Isopod *Stygobromus culveri* /G1G2/S1 NEW R9 SS

Habitat: Seep and drip pools or in small streams in caves. ³³

MNF Range ³⁰

Species Location	County	Quad	Cave
On Forest	Tucker	Mozark Mountain	Red Run
Within Proclamation Bdry	Randolph	Sinks of Gandy	Stillhouse
Within 5 mi. of PB	Randolph	Whitmer	Flower Pot

LOO: Caves noted above are outside watershed.

Greenbrier Cave Isopod *Stygobromus emarginatus* /G3/S3 NEW R9 SS

Habitat: In caves under gravel in streambeds and occasionally in pools. Most abundant in smallest trickles of water. Primarily in tiny first and second order headwater cave streams. ^{27, 35}

MNF Range ³⁰:

Species Occurrence	County	Quad	Cave
On Forest	Randolph	Bowden	Bowden
On Forest	Tucker	Parsons	Big Springs
Within Proclamation Bdry	Pocahontas	Mingo	My Cave
Within Proclamation Bdry	Pocahontas	Mingo	Dreen
Within Proclamation Bdry	Pocahontas	Mingo	Clay Pit
Within Proclamation Bdry	Pocahontas	Mingo	Sharps
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within Proclamation Bdry	Tucker	Mozark Mt	Harper
Within Proclamation Bdry	Tucker	Mozark Mt	Bonner Pit
Within Proclamation Bdry	Greenbrier	Anthony	The Hole
Within 5 miles of PB	Greenbrier	Williamsburg	Levisay
Within 5 miles of PB	Greenbrier	Williamsburg	Rapps
Within 5 miles of PB	Pocahontas	Mingo	Linwood
Within 5 miles of PB	Pocahontas	Hillsboro	Martha's
Within 5 miles of PB	Pocahontas	Hillsboro	Upper Martha's
Within 5 miles of PB	Pocahontas	Denmar	Poor Farm
Within 5 miles of PB	Randolph	Harman	Bazzle
Within 5 miles of PB	Randolph	Whitmer	Flower Pot

LOO: Caves noted above are outside watershed.

Pocahontas cave isopod *Stygobromus nanus* /G1/S1 NEW R9 SS

Habitat: Mud bottoms of small streams and seep pools in caves. ³³

MNF Range: Occurs within Proclamation Boundary in Pocahontas Co., Edray Quad – Piddling Pit Cave. ³⁰

LOO: Piddling Pit Cave is located outside watershed.

Minute cave isopod *Stygobromus parvus* /G1G2/S1 NEW R9 SS

Habitat: Found in mud-bottomed, drip and seep pools in caves; tolerant of substrate, but prefers standing water. ³⁴

MNF Range ³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Pocahontas	Cass	Cassell
Within Proclamation Bdry	Pocahontas	Edray	Piddling Pit
Within Proclamation Bdry	Tucker	Mozark Mt.	Bonner
Within 5 miles of PB	Randolph	Valley Head	Crawford #2

LOO: Caves noted above are outside watershed.

WV Blind Cave Millipede *Trichopetalum krekeleri* ___/G1/S1

In selected caves, under rocks, around organic debris or on damp silt banks near streams. Known from only 5 WV caves. Bowden and Alpena #1 cave are found on the MNF or within the Proc. Boundary.

LOO: Present in Alpena Cave within the watershed boundary.

Grand Caverns Blind Cave Millipede *Trichopetalum weyeriensi* /G3Q/S2 **NEW SS**

Habitat: Damp areas in caves on organic debris.³³

*MNF Range*³⁰:

Species Occurrence	County	Quad	Cave
Within Proclamation Bdry	Greenbrier	Anthony	The Hole
Within Proclamation Bdry	Pendleton	Onega	Mystic
Within Proclamation Bdry	Pocahontas	Mingo	My Cave
Within Proclamation Bdry	Pocahontas	Mingo	Linwood
Within Proclamation Bdry	Pocahontas	Mingo	Dreen
Within 5 miles of PB	Greenbrier	Lewisburg	Arbuckle
Within 5 miles of PB	Greenbrier	Williamsburg	Higginbothams
Within 5 miles of PB	Greenbrier	Williamsburg	Ludington
Within 5 miles of PB	Greenbrier	Williamsburg	McClung
Within 5 miles of PB	Pendleton	Moatstown	Kenny Simmons
Within 5 miles of PB	Pocahontas	Cass	Cass

LOO: Caves noted above are located outside watershed.

Luray Caverns Blind Cave Millipede *Trichopetalum whitei* /G2Q/S1 **NEW R9 SS**

Habitat: Damp areas in caves on or near organic debris.³³

*MNF Range*³⁰:

Species occurrence	County	Quad	Cave
Within Proclamation Bdry	Pendleton	Onega	Hellhole
Within Proclamation Bdry	Pendleton	Onego	Stratosphere Balloon
Within 5 miles of PB	Pendleton	Sugar Grove	Trout

LOO: Caves noted above are located outside watershed.

A spider *Phaneta subterranean* ___/G3/S3 **NO LONGER ON SS LIST**

A common troglobite in caves throughout most of the eastern US. Usually near damp, decaying organic debris. In WV, known from 27 caves in 9 counties. The only MNF caves it is known from are Bowden Cave, Randolph Co., and Smokehole Cave, Pendleton Co.

PLANTS

Fraser fir *Abies fraseri* SOC/___/__(D)

Habitat: Coniferous tree, generally found above 4500'.

MNF Range: Known from Blister Run, and Beaverdam Run, Randolph Co. According to Heritage Program records, is not native to WV. All known sites in WV are planted.³⁶

LOO: There are no areas of planted Fraser fir located within the watershed.

White Monkshood *Aconitum reclinatum* ___/G2/S2S3

Habitat: Perennial herb found in mesic northern hardwood forests with acidic bedrock, 2500-4000' elev. Common on NE aspects, especially in coves. In wet but not flooded soil in partial shade, often in a seep at the edge of a road or river where the soil has been worn away (e.g. clay content) by the water moving down the hill. Also along high elevation roads. Most commonly on Cateache soils with Mauch Chunk geology.

MNF Range: Gay Knob Area (Edray), Chestnut Ridge (Paddy Knob, Spruce Knob Roadside 112 (Spruce Knob), & sideslope of Laurel Run (Sharp Knob); occurs in Pocahontas, Randolph, Preston, Pendleton, Grant and Tucker Co.

LOO: There is one population present within the watershed. Additional surveys would be required based upon individual project locations.

Arctic bentgrass *Agrostis mertensii* G5S1 NEW R9 SS

Habitat: Open riparian at high elevations in peaty or rocky soil. ^{38,46,47}

MNF Range: Known along the upper Shavers Fork above Cheat Bridge on the Mower tract. ³⁰

LOO: There is no suitable habitat located within watershed.

Lillydale Onion *Allium oxyphilum* ___/G3Q/S3

Habitat: Odiferous herb with bulb; endemic to acidic shale or sandstone geology mainly on shale barrens.

MNF Range: Found in White Sulphur Springs, & Greenbrier, Pendleton, & Grant Co.

LOO: There are no shale barrens within watershed.

Spreading Rockcress *Arabis patens* ___/G3/SU NEW R9 SS

Habitat: Moist, rocky woods, limestone outcrops and shady riverbanks.

MNF Range: in the Eastern panhandle; Jordan Run Road, Grant Co.; "Dry Trough" Hampshire Co.; Wardensville, Hardy Co.; and Terrapin Neck, Jeff. Co.

LOO: There are no known populations within the watershed although there are limestone outcrops. Thus far, this species is known only from the ridge and valley area of the forest.

Bradley's Spleenwort *Asplenium bradleyi* ___/G3/___ NO LONGER ON SS LIST

Found on very acid soils, crevices of sandstone, shale cliffs, rock outcrops and boulders in Grant and Greenbrier Counties.

Smooth Blue Aster *Aster laevis v. concinnus* ___/G5T3/___ NO LONGER ON SS LIST

No information on variety concinnus. *A. laevis* on open usually dry places in the eastern part of the state. Found on ridges at elevations above 3000'. Grant, Greenbrier, Hardy, and Preston Co. Found near Clifton Run, in Randolph County.

Cooper's Milkvetch *Astragalus neglectus* G4S1

Habitat: An annual herb found on drier, limestone-based soils in the eastern part of the state.

MNF Range: Only known site is on Cave Mountain, Grant Co., in what is considered a prairie extant community.

LOO: Cave Mountain is not located within watershed.

American Barberry *Berberis canadensis* ___/G3G4/___ NO LONGER ON SS LIST

Found in woods, open fields, and roadsides – mostly on limestone in Greenbrier and Pocahontas Counties. West Virginia considered the northern limit of its range.

Lance-leaf Grapefern *Botrychium lanceolatum* G5S1 NEW R9 SS
Habitat: Subarctic and boreal plant of mountain slopes and meadows. Occurs in moist shady woods and margins of swamps. ⁴⁷
MNF Range: Collected in Greenbrier, Pocahontas, Preston, Randolph, & Upshur Co. ³⁸
LOO: There may be suitable habitat located within the watershed.

Bluntlobe Grape Fern *Botrychium oneidense* _/G5T?/_ **NO LONGER ON SS LIST**
 Rich moist woods and swamps. Only known site near Gatewood Switch, Pendleton County.

Harned's Swamp Clintonia *Clintonia alleghaniensis* ___/G1Q/S1
Habitat: Low herb with umbel, endemic to high elevations of WV and MD above 3500'. Wet inclusions in dry woods or mesic spruce forest. Mt. glades & bogs or swampy woods (particularly where 2 river points come together) (e.g. Warren Run into Gandy Creek.). Riparian areas. Known geology is Pottsville boulders.
MNF Range: Known from Blister Swamp, Old Spruce, Second Fork & First Fork Wetland, Pocahontas Co.; Cranesville Swamp, Preston Co.; Big Draft, Kate's Mtn., White Sulphur Springs, Greenbrier Co.; Hunter Fork Creek, Barber Co.; Norton & Bill Bogg, Randolph Co.; Laurel Fork Wilderness (N&S), Canaan Valley, Yokum Knob, Narrow Ridge and Blue Knob (near Cranberry Glades Bog).
LOO: Watershed is outside known habitat range.

Showy Lady's Slipper *Cypripedium reginae* G4/S1 NEW R9 SS
Habitat: June-Sept. Low, downy, perennial herb occurring in swamps and woods.
MNF Range: Rare in WV, known to occur on MNF only near White Sulphur Springs, Greenbrier Co. ³⁸
LOO: White Sulphur Springs is not located within watershed.

Tall Larkspur *Delphinium exaltatum* SOC-WV/G3/S1 (U)
Habitat: A perennial herb found in open limestone woods, mainly in the mountains in the eastern part of the state.
MNF Range: Found at Smokehole in Pendleton Co., Hardy and Greenbrier Co.
LOO: There may be suitable habitat within watershed.

Yellow Buckwheat (Shale Barren Wild Buckwheat) *Eriogonum allenii* G4/S2
Habitat: A perennial herb found on the most sterile and barest shale barren sites.
MNF Range: Greenbrier Co.; Ugly Mt., Pendleton Co.
LOO: There are no shale barrens within watershed.

Darlington's Spurge *Euphorbia purpurea* SOC-WV/G3/S2 (S)
Habitat: An Annual herb with milky juice found in mountain glades and swampy woods (particularly where 2 river points come together, e.g. where Warner Run flows into Gandy Creek). Possibly mountain bogs, riparian areas. Moist to saturated soils.
MNF Range: Known from Blister Swamp, Pocahontas Co.; Terra Alta, Preston Co.; Laurel Fork, Randolph Co.; Tucker Co.; Canaan Valley, Laurel Fork Wilderness (N&S), McGowan Mt., Cunningham Knob, Yokum Knob, Narrow Ridge, Blue Knob (Cranberry Glades Bog Area).
LOO: There may be suitable habitat within the watershed.

Box Huckleberry *Gaylussacia brachycera* ___/G3/S2

Habitat: Smooth shrub found in acidic sandy soil within submesic forests and on woodland slopes. Also found under hardwoods, with mixed pine, mountain laurel and other heaths in understory.

MNF Range: Largest population on border of GWNF and MNF in the eastern part of the state. In Greenbrier & Pocahontas Co., North Fork Mt., Redman Run Trail & Smokehole.

LOO: Watershed is outside known habitat range.

Appalachian Oak Fern *Gymnocarpium appalachianum* ___/G3/S1 **NEW R9 SS**

Habitat: Primarily occurs in rocky maple-birch-hemlock woods on mountain slopes and summits, on moist sandstone, talus slopes or bouldery colluvium. Requires a cool, moist microclimate and typically occurs on north-facing slopes with cold air seepage at elevations above 2,000 ft.; occasionally at lower elevations, particularly on the fringes of its range.³⁹

MNF Range: Endemic to the Appalachian region, most common in Virginia (the center of its range), where it occurs at 30-100 localities. Pendleton Co.³⁰

LOO: Watershed is outside known habitat range.

White Alumroot *Heuchera alba* ___/G2Q/S2

Habitat: Erect perennial herb found in dry, open woods in the eastern part of the state. Found on sandy soils with Tuscarora sandstone (e.g. North Fork Mt.), on rock outcrops within the woods (Gay Knob, Edray Quad) & on rock outcrops on roadside (Rd. 112, Spruce Knob, Pendleton Co.).

MNF Range: Found in higher elevations of North Fork Mt., Grant Co.; Spruce Knob, Pendleton Co.; Crouch Knob, Randolph Co.; Cass, Pocahontas Co.

LOO: There may be suitable habitat within the watershed.

Crested Coralroot *Hexalectris spicata* G4?/S1 **NEW R9 SS**

Habitat: July-Aug. A leafless herb occurring in rich woods.

MNF Range: Smoke Hole, Pendleton Co.; approaching the northern limit of its range.³⁸

LOO: Watershed is outside known habitat range.

Long-stalked Holly *Ilex collina* ___/G3/S3

Habitat: Deciduous shrub or tree found in riparian areas along high energy stream sides at higher elevations. May also be found on moist soil; wet meadows and bogs.

MNF Range: Selected sites on Cheat, Greenbrier and Gauley districts. Along Gauley and Cranberry Rivers.

LOO: There may be suitable habitat within watershed.

Butternut *Juglans cinerea* SOC-WV/G3/__(D)

Habitat: Deciduous shade-intolerant tree found in rich loamy soils, mixed hardwood forests, shade intolerant, regeneration in open fields, riparian zones, along ridges, or in edge habitat. Found in association with hawthorn on Greenbrier River shoreline in Greenbrier Co.

MNF Range: From valley to 3200'. Along streams (Laurel & Shavers Forks), & near the Gay Knob area (USFS Road 201) in Randolph Co.; also found in similar areas in adjacent counties. Also found on Landis Trail of North Fork Mt., Pendleton Co., and in Webster Co.

LOO: Present within the watershed.

- Thread rush** *Juncus filiformis* G5/S2 NEW R9 SS
Habitat: June-Aug. Perennial grass-like herb occurring in bogs.
MNF Range: Canaan Valley, elev. 3,000', Tucker Co.; and near Cheat Bridge, Randolph Co. – the southernmost known localities for this species.³⁸
LOO: There may be suitable habitat within the watershed.
- Highland rush** *Juncus trifidus* G5/S1 NEW R9 SS
Habitat: Rock crevices and alpine meadows.⁴⁷
MNF Range: Known only from the rocky cliff tops on North Fork Mountain. Global range is Europe and NE America south to mtns. of Virginia and North Carolina.^{30, 46}
LOO: North Fork Mountain is outside of watershed.
- Turgid Gay Feather** *Liatris turgida* ___/G3/___
Habitat: Erect perennial herb in xeric environments associated with clay soils, gravel, shale barrens, & rocky outcrops; can also colonize roadcuts. Occurs in shale barrens in WV. Associates include mt. laurel, black gum, red pine, chestnut oak, & sassafras.
MNF Range: (e.g. Slaty Fork TNC Reserve in Monroe Co.) & along roadside (McDowell Co.) White Sulphur Springs, Greenbrier, & Nicholas Co.
LOO: There are no shale barrens within watershed.
- American Gromwell** *Lithospermum latifolium* ___/G3G5/___ **NO LONGER ON SS LIST**
 Moist or dry woods and thickets throughout the state but usually uncommon. Greenbrier County.
- Sundail Lupine** *Lupis perennis perennis* ___/G5T3T4/S1 **NO LONGER ON SS LIST**
 Dry sandy soil in the northeastern part of the state. Found in Hardy, Pendleton, Pocahontas, and Preston Counties. Found at Kane Gap Hill (Hardy), Trout Run (Franklin Quad), and Lost River.
- Large-Flowered Barbara's Buttons** *Marshallia grandiflora* SOC-WV/G2S2/___(S)
Habitat: Smooth perennial aster found on sandy or rocky river banks of larger (3rd to 4th order) streams in mountains. Requires hydrology of flood-scouring and full sun, with little competition. Also found in bedrock crevices and sparsely vegetated shores with small stones.
MNF Range: Along the western slopes of Alleghenies. Shaver's Mt., Cheat Mt., Hopkin's Mt., Shaver's Fork, Cherry River, Horse Ridge, Gun Powder Ridge, Huttonsville; Blue Bend (Greenbrier Co.), along lower Gauley River, Nicholas Co.; Cheat River, Preston Co.
LOO: Suitable habitat may exist within the watershed.
- Bog Buckbean** *Menyanthes trifoliata* G5/S1 NEW R9 SS
Habitat: April-June. A smooth, perennial marsh herb occurring in bogs and marshy places.
MNF Range: Backbone Mt., Tucker Co.; Cranberry Glades, Pocahontas Co.; historic site at Cranesville, Preston Co.³⁸
LOO: Watershed is outside known habitat range.
- Smokehole Bergamot** *Monarda fistulosa* v. *brevis* SOC-WV/G5T1/___(D)
Habitat: Perennial, aromatic herb found only on limestone-derived communities of Cave Mt. ecosystem including the south branch of Potomac sideslopes, cedar glades and rock outcrops.
LOO: Cave Mountain is outside this watershed.
- Shale Barren Evening Primrose** *Oenothera argillicola* ___/G3/___ **NO LONGER ON SS LIST**
 Found on dry sites on eastern slopes of Alleghenies; Greenbrier, Hardy and Pendleton Co. also on shales near Huttonsville, Randolph Co.; near Parsons, Tucker Co., (the only known occurrence of shale barren endemics on the western slopes of the mountains).

Canada Mountain Ricegrass *Oryzopsis Canadensis* G5/S1 NEW R9 SS

Habitat: June-July. A perennial grass occurring on sandy barrens.

MNF Range: Summit of Panther Knob, Pendleton Co., elev. 4,500', the southernmost station known for the species. ³⁸

LOO: There are no barrens within watershed.

Canby's Mountain Lover *Pachistima canbyi* SOC/G2/S2 (U)

Habitat: Low evergreen shrub found in dry open woods. Calcareous rocks and slopes in the mountains.

MNF Range: Found only in Potomac and New-Kanawha watersheds in Grant, Pendleton and Greenbrier Co.

LOO: There may be suitable habitat within watershed.

Virginia (or Yellow) Nailwort *Paronychia virginica* v. *virginica* SOCWV/G4T1Q/S1)(D)

Habitat: Perennial mat-like, wiry plant found on limestone-based rocky cliffs, sandstone banks, crevices along riverbanks, & cedar glades.

MNF Range: Cave Mtn., Eagle Rock & Ship Rock in the Smokehole, Pendleton Co.

LOO: The Smokehole area is outside watershed.

White Mountain Silverling (*Paronychia argyrocoma* v. *albimontana*) NEW R9SS

Habitat: July-Sept. Low perennial herb occurring on White Medina sandstone

MNF Range: New Creek Mt., Grant Co.; Lost River State Park, Hardy Co.; Seneca Rocks, North Fork Mt., Pendleton Co. ³⁸

LOO: Watershed is outside the known range of this plant.

Swamp Lousewort *Pedicularis lanceolata* G5/S2 NEW R9 SS

Habitat: Aug.-Oct. Herb occurring in swampy places, often calcareous.

MNF Range: Altona Marsh, Jefferson Co.; Buckeye, Dunmore & Minnehaha Springs, Pocahontas Co.; Sweet Springs, Monroe Co.; near Elkins, Randolph Co. – only known colonies in state. ³⁸

LOO: Watershed is outside known habitat range.

Swordleaf Phlox *Phlox buckleyi* ___/G2G3/S

Habitat: Perennial herb found on shaley slopes, road banks and open woods.

MNF Range: E. Pocahontas Co. near WV55 and WV39, and in Greenbrier Co.

LOO: There are no shale barrens within watershed.

Jacob's Ladder *Polemonium van-bruntiae* ___/G3/S2

Habitat: Perennial herb found in swamps and sphagnous bogs and along riparian zones at higher elevations.

MNF Range: Pocahontas and Preston Co. Southernmost population in Cranberry Glades bog. Also, in Canaan Valley, Tucker Co.

LOO: Present within the watershed.

Tennessee Pondweed *Potamogeton tennesseensis* ___/G3/___

Habitat: Aquatic herb found in standing or slow-flowing shallows of rivers.

MNF Range: Greenbrier, Pocahontas, Preston, and Webster Co.

LOO: Suitable habitat is present within the watershed.

Nodding Rattlesnake Root *Prenanthes crepidinea* _/G3-G5/S

NO LONGER ON SS LIST

Found in rich soil of riparian zones near Elk River in Randolph Co., and in Webster Co. Also found on sideslopes of Gay Knob (Edray) area.

Cliff Stonecrop *Sedum glaucophyllum* __/G3G4/___

NO LONGER ON SS LIST

Damp, usually calcareous rock in the mountains. An associate species of the calcium transition from shale barren (with little Ca) to the cedar glades on limestone soils to limestone cliff outcrops on Cave Mtn. Found in Grant, Greenbrier, Pendleton and Pocahontas Counties. Also in Smokehole area, on shale barrens; Blue Bend Shale Barren, upper Whites, lower Whites, Meadow Creek, Middle Mtn., Turkey Pen Run in Greenbrier County, and Sladey Shale Barren in Monroe County.

Rock Skullcap

Scutellaria saxatilis

G3G4/S1

Habitat: May-July. Perennial herb found on wooded rocky hillsides, moist cliffs, 2,500+'; talus slopes/bluffs; moist openings such as riverbanks or talus.

MNF Range: Greenbrier, Pocahontas & Tucker Co.

LOO: Suitable habitat may be found within the watershed.

Robust Fire Pink

Silene virginica v. robusta

SOC-WV/G5TQ/___

Habitat: Narrow endemic perennial herb in dry open woods or riparian areas of Smokehole Rec. Area. Associated with limestone.

MNF Range: Petersburg Gap in Grant and Pendleton Co.

LOO: Smokehole Recreation Area is outside watershed.

Shale Barren Goldenrod *Solidago arguta v. harrissii* G5T3/

NO LONGER ON SS LIST

Species found in calcium transition from shale barren (very little Ca) to cedar glades on limestone soils. Found in Greenbrier and Pendleton Counties.

Virginia Mtn Pimpernel *Taenidia Montana* __/G3G4/___

NO LONGER ON SS LIST

Species found on calcium transition from shale barren (very little Ca) to cedar glades on limestone soils. Also in argillaceous or shaley wooded slopes. Common in all counties of the state. Found on Cheat District at top of dry ridge up from Dry Run (St. George) in scarlet oak ELT.

Ammon's Tortula

Tortula ammonsiana

SOC-WV/G1/___(U)

Habitat: Moss found on wet, cool rock outcrops on cliff overhangs adjacent to waterfalls. Sandstone walls.

MNF Range: Falls of Hills Creek, Pocahontas Co.⁴⁰

LOO: Watershed is outside known habitat range.

Bristle Fern

Trichomanes boschianum

G4/S1 **NEW R9 SS**

Habitat: Delicate fern occurring on dripping rocks. The gametophyte will probably be found in deep shaded recesses of sandstone and quartzite rocks. In the Appalachians it is more common and widespread than the sporophyte, but is overlooked because it resembles a filamentous alga.

MNF Range: Kanawha State Forest, Kanawha Co.; Webster Springs, Webster Co. This represents a northeastern extension of the range of this species.³⁸

LOO: Watershed is outside known habitat range.

Kate's Mountain Clover *Trifolium virginicum* ___/G3/S2S3

Habitat: Perennial, non-stoloniferous clover found on south-facing slopes of very sterile shale barrens and in dry-shaley soils. *MNF Range:* Eastern portion of the MNF including: Kate's Mt., Greenbrier Co.; Smokehole (above Big Bend campground); Hardy, Nicholas (Devonian shales), Pendleton Co.

LOO: There are no shale barrens within watershed.

Nodding Pogonia *Triphora trianthophora* G4/S2 **NEW R9 SS**

Habitat: Aug.-Sept. Rich woods, infrequent.

MNF Range: There are only 2 populations on MNF. Other locations include: Short Creek, Fayette Co.; Spring Hill, Kanawha Co.; Mt. Lookout, Nicholas Co.; French Creek, Upshur Co.; and Holly River State Park, Webster Co.³⁸

LOO: There may be suitable habitat within watershed.

Appalachian Blue Violet *Viola appalachiensis* ___/G3G4/S2

Habitat: Short perennial stoloniferous herb (mat-forming). Moist floodplains of high energy streams, alluvial pond shores, old logging roads, and old mounds of up-rooted cherry trees.

MNF Range: Found on all districts. Grant, Hardy, Nicholas, Pendleton, Pocahontas, Preston, Randolph, Tucker, and Webster Co.

LOO: There may be suitable habitat within watershed.

Sand Grape *Vitis rupestris* ___/G3/___

Habitat: Brushy, shrub-like grape found climbing on calcareous or gravelly banks, river bottoms, streambeds, washes, and scoured boulders and cobbles.

MNF Range: Found in Grant, Greenbrier, Pendleton and Preston Co.

LOO: Watershed is outside known habitat range.

Appalachian Shoestring Fern *Vittaria appalachiana* ___/G3-G4/S2 **NO LONGER ON SS LIST**

Restricted to moist rock crevices near waterfalls or under rock ledges in Pocahontas and Tucker Counties.

Netted Chain Fern *Woodwardia areolata* G5/S1 **NEW R9 SS**

Habitat: Large fern occurring in swamps and wet woods, chiefly in acid soil.

MNF Range: In WV, known only from Clay, Greenbrier, Mineral, Nicholas, Pocahontas, and Upshur counties. Species is distributed principally in the coastal plan and its occurrence in this state suggests that it is a remnant of the Cretaceous flora that occupied the territory prior to the uplift of the Appalachian Plateau.³⁸

LOO: Watershed is outside known habitat range.

Key to species Accounts:

Rank: State Rank/Global Rank/Federal Rank

State rank:

- S1 = Critically imperiled in state. Five or fewer occurrences.
- S2 = Imperiled in state. 6-20 occurrences.
- S3 = Rare or uncommon in state. 21-50 occurrences.
- S4 = Common and apparently secure with more than 100 occurrences.
- S5 = Very Common and demonstrably secure.
- SH = Historical. Species that have not been relocated within the last 20 years.
- T_ = Status of subspecies or variety.
- Q = Status questionable.
- U = population trend unknown (federal listing).
- S = population trend stable (federal listing).
- I = population trend increasing (federal listing).
- D = population trend declining (federal listing).

SOC = species of concern; further biological research and field study are needed to resolve the conservation status of these taxa.

SOC-WV=species of concern in West Virginia; further biological research and field study are needed to resolve the conservation status of these taxa.

Global rank:

- G1 = Less than 6 occurrences globally; critically imperiled; especially vulnerable to extinction.
- G2 = 6-20 occurrences globally; imperiled and very vulnerable to extinction throughout its range.
- G3 = 21-100 occurrences globally; either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. in a single state or physiographic region) or because other factors make it vulnerable to extinction throughout its range.
- G4 = Apparently secure globally.
- G5 = Demonstrably secure globally.

E= Federal listing as Endangered

T= Federal listing as Threatened

* = The entrances to both Bowden Cave and Smokehole Cave are on private land however, portions of the underground cave passages lies under NF land.

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Vertebrate Species of Concern in WV: Green salamander, page 41A; Northern goshawk, page 69A; Bald eagle, page 72A; Peregrine falcon, page 73A; Small-footed myotis, page 91A; Virginia Big-eared bat, page 95A

Known Bat Caves from Element Occurrence Log Sheet; WVDNR Heritage Database.

Virginia Big Eared Bat

Cave	Ownership	County	Quad	Status
Alpena #1&2	Private	Randolph	Bowden	
Aqua-terra	Private	Randolph	Whitmer	
Arbogast Cave	FS	Tucker	Mozark Mt.	Critical habitat, gated
Big Springs	FS	Tucker	Parsons	Gated
Bob White	Private	Tucker	Parsons	
Bowden	Private	Randolph	Bowden	
Brook Stemple	Private	Preston	Aurora	
Brushy Run	Private	Pendleton	Mozer	
Cave Hollow	FS	Tucker	Mozark Mt.	Critical habitat, gated
Cave Mountain	FS	Pendleton	Upper Tract	Gated
Cedar Hill	Private	Grant	Petersburg W	
Cliff Cave	Private			Isolated, signed
Elkhorn	Private			Bachelor colony, closed June – October
Green Hollow	Private			
Harper Trail	FS	Randolph	Beverly East	
Hellhole	Private	Pendleton	Onego	Critical habitat, gated
Hoffman School	Private			Critical habitat, gated
Izaak Walton	Private	Randolph	Beverly East	
Keys	Private	Pendleton	Franklin	
Lambert	Private	Pendleton	Circleville	Gated
Mill Run	Private	Tucker	Mozark Mt.	Access denied since 1981
Mill Run 1 & 2	Private	Pendleton	Mozer	Landowner agreement, signed
Minor Rexrode	Private			Fenced
Mystic	Private	Pendleton	Onego	Signed closed
Peacock	FS	Grant	Petersburg W	Signed, closed, isolated
Schoolhouse	Private	Pendleton	Upper Tract	Fenced
Seneca Caverns	Private	Pendleton	Onego	
Sinks of Gandy	Private	Randolph	Sinks of Gandy	
Sinnit/Thorne Mtn.	Private			Critical habitat, gated
Smoke Hole	Private	Pendleton	Upper Tract	
Stewart Run	FS	Randolph	Snyder Knob	
Stratosphere Balloon	Private	Pendleton	Onego	
Warners (Broken Dome)	Private	Pendleton	Onego	

Indiana Bat

Cave	Ownership	Species Occurrence	County	Quad
Big Springs	FS	On Forest	Tucker	Parsons
Bob Gee	Private	Within Proc. Bdry	Greenbrier	Trout
Bowden	FS	On Forest	Randolph	Bowden
Cass	Private	Within Proc. Bdry	Pocahontas	Cass
Cave Hollow***	FS	Within Proc. Bdry	Tucker	Mozark Mt.
Cornwell	Private			
Dreen	Private	Within Proc. Bdry	Pocahontas	Mingo
Falling spring	Private	Within Proc. Bdry	Randolph	Mingo
Fortlick	Private	Within 5 miles of Proc. Bdry	Randolph	Valley Head
General Davis	Private			
Gooseberry	Private	Within 5 miles of Proc. Bdry	Randolph	Adolph
Hellhole	Private	Within Proc. Bdry	Pendleton	Onego
Higginbothams #1	Private	Within 5 miles of Proc. Bdry	Greenbrier	Williamsburg
Honacker	Private		Mercer	
Izaak Walton	Private	Within Proc. Bdry	Randolph	Beverly East
Lobelia Saltpeter	Private	Within 5 miles of Proc. Bdry	Pocahontas	Lobelia
Martha's	Private	Within 5 miles of Proc. Bdry	Pocahontas	Hillsboro
Mcferrin	Private	Within 5 miles of Proc. Bdry	Greenbrier	Williamsburg
Minor Rexrode	Private		Randolph	
Organ	Private		Greenbrier	
Patton	Private		Monroe	
Piercy's	Private		Greenbrier	
Schoolhouse	Private	Within Proc. Bdry	Pendleton	Upper Tract
Simmons-Mingo	Private	Within Proc. Bdry	Randolph	Mingo
Snedagars	Private	Within 5 miles of Proc. Bdry	Pocahontas	Droop
Stewart Run	Private	Within Proc. Bdry	Randolph	Snyder Knob
Trout	Private	Within 5 miles of Proc. Bdry	Pendleton	Sugar Grove
Tub	Private	Within 5 miles of Proc. bdry	Pocahontas	Hillsboro
Two Lick	FS	On Forest	Randolph	Bowden
Upper Martha's	Private	Within 5 miles of Proc. Bdry	Pocahontas	Hillsboro